Pertanika J. Soc. Sci. & Hum. 34 (5): 2489 - 2515 (2026)

PERTANIKA JOURNALS

SOCIAL SCIENCES & HUMANITIES

Journal homepage: http://www.pertanika.upm.edu.my/

Anxiety in Malaysian Adults: Psychometric Validation of the Screen for Adult Anxiety Related Disorders (SCAARED)

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ABSTRACT

The prevalence of anxiety disorders among Malaysian adults is high and yet, locally validated self-report measures that comprehensively assess specific anxiety domains remain limited. The Screen for Adult Anxiety Related Disorders (SCAARED) measures Panic/Agoraphobia, Generalised Anxiety, Social Anxiety, and Separation Anxiety, but has not been validated in Malaysia. This study examined the psychometric properties of the SCAARED using non-probability sampling methods. A predominantly non-clinical sample of 1,058 English-speaking Malaysians aged 18-68 years was recruited. Participants completed SCAARED and selected items from five DSM-5 dimensional anxiety scales. Confirmatory factor analysis supported the original four-factor structure, indicating excellent model fit (χ^2 = 1,080.231, *df* = 896, CFI = .963, TLI = .961, RMSEA = .014, SRMR = .037). The total-scale demonstrated high internal consistency (α = .827, ω = .837). Reliability was acceptable for Panic/Agoraphobia (α = .749, ω = .765) subscale but not for the remaining subscales. Convergent validity was supported by statistically significant correlations of strong effect sizes for Panic (*r* = .557) and Agoraphobia (*r* = .558) subscales. These findings offer preliminary support for the SCAARED among English-speaking Malaysian adults. The lack of clinical samples and lower reliability of some subscales suggests a need for further adaptation and refinement in future studies.

Keywords: Anxiety disorders, Malaysian adults, reliability, SCAARED, validity

ARTICLE INFO

Article history:
Received: 26 May 2026
Accepted: 17 August 2026
Published: 30 October 2026

DOI: https://doi.org/10.47836/pjssh.34.5.07

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INTRODUCTION

Background

Anxiety disorders (ADs) are among the most prevalent mental health conditions worldwide (Khaiyom et al., 2021). In Malaysia, ADs remain a significant public health concern with a prevalence of generalised anxiety disorder (GAD) at 1.7%,

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comparable to global estimates (Ministry of Health Malaysia, 2020). However, other ADs including panic disorder, agoraphobia, social anxiety disorder (SAD), and separation anxiety disorder (SEP) are less frequently recognised and may be underdetected among Malaysian adults (Khaiyom et al., 2019).

In Malaysia, anxiety assessment in clinical settings commonly rely on self-reports (Balsamo et al., 2018) such as the Beck Anxiety Inventory (BAI), Depression Anxiety Stress Scale-21 (DASS-21), and Generalised Anxiety Disorder-7 (GAD-7). Although these tools primarily assess overall anxiety severity (Ismail et al., 2023; Oei et al., 2013; Shawaluddin et al., 2023), they do not adequately differentiate between specific AD domains. This limits their utility for diagnostic clarification, research comparison, and targeted intervention.

The Screen for Adult Anxiety Related Disorders (SCAARED) developed by Angulo et al. (2017) addresses this limitation. SCAARED is a 44-item self-report instrument grounded in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (American Psychiatric Association, 2013a). It was adapted from the Screen for Child Anxiety Related Emotional Disorders (SCARED) by Birmaher et al. (1997).

In Malaysia, the English version of the SCARED has been validated by Ang (2020) for Malaysian children and adolescences. However, the absence of a validated adult counterpart to SCARED in Malaysia limits continuity in anxiety assessment across developmental stages. Clinicians and researchers will need to transition to different instruments once individuals reach adulthood, complicating longitudinal comparison of anxiety trajectories and potentially obscuring developmental patterns (Angulo et al., 2017).

Moreover, SEP was only recently recognised for adults (Silove et al., 2015) in the DSM-5 (American Psychiatric Association, 2013a), and many adult anxiety instruments were developed prior to this revision. Consequently, no validated adult instrument in Malaysia comprehensively assesses DSM-5 anxiety domains, including SEP. In the absence of such tools, adult anxiety assessments in Malaysia could be at risk of reduced diagnostic accuracy.

Local validation is also important as several psychological tools originally based on western adult measures, have been put to use in Malaysia without proper validation (Abubakar & Fischer, 2011; Khaiyom et al., 2019). This may cause misidentification of anxiety profiles because instruments may not align with local manifestation of symptoms. For example, Ang (2020) found that the original five-factor model of SCARED required modification in Malaysian samples, resulting in a four-factor structure. These findings indicate that the organisation of anxiety symptoms can differ in Malaysia and raises questions about whether SCAARED will show a similar pattern among Malaysian adults. It is also uncertain whether SCAARED fully reflects DSM-5 anxiety constructs within a multicultural collectivist context, making local validation necessary.

Overall, these issues emphasise the need for a validated adult version of SCAARED that can be used for accurate assessment of ADs in Malaysia. Anxiety measurement instruments that do not take into account the latest diagnostic criteria or are not suitably adapted for a certain population may pose a risk of overlooking or misclassifying symptoms (Niwenahisemo et al., 2025). A SCAARED validation in Malaysia can be the first step towards addressing the absence of an adult anxiety measure that aligns with DSM-5 domains, reflects local symptom expressions, and is consistent with the SCARED. Establishing its psychometric quality may improve assessment accuracy, clinical decision-making, and research on anxiety across the lifespan in Malaysia.

Research Objectives

The present study aims to examine the construct validity of the original four-factor structure of SCAARED, assess the internal consistency of the total scale and its subscales, and evaluate convergent validity through comparisons between SCAARED subscales and established DSM-5 dimensional anxiety measures assessing the corresponding anxiety domains.

Significance

Cross-cultural perspectives propose that cultural norms influence how anxiety is expressed and interpreted. This study will help assess which anxiety constructs meet the theoretical structure in Malaysia and identify which need culturally informed interpretations. As a result, this reduces inaccurate assumptions on how anxiety manifests among Malaysians and supports the practice of validating assessments before use in a certain population.

No research has previously produced psychometric evidence of SCAARED in the Malaysian population. Evaluating factor structure, internal consistency and convergent validity will provide the first local evidence regarding the instrument's four-factor model in Malaysian adults. This work addresses a methodological gap for future research to refine culturally sensitive item wording.

This study will enable clinical psychologists and psychiatrists to emphasize a culturally appropriate assessment for screening, case formulation, and treatment planning. Universities and training programmes will gain access to an evidence-based measure suitable for research and teaching. Workplaces, employee assistance programmes, and public health initiatives will be able to adopt a reliable screening tool to support early detection and intervention. Governmental agencies and policymakers involved in national mental health strategy will benefit from local data that inform guidelines for standard assessment practice, strengthen monitoring systems across age groups, and shape culturally grounded public mental health policies.

LITERATURE REVIEW

Psychometric Rationale

Cultural relativism by Herskovits (1972) emphasises that psychological phenomena must be understood within their cultural

context recognising the uniqueness of each society. Similarly, Hofstede (2011)'s theory of cultural dimensions addresses the distinction between individualistic and collectivistic societies. As Malaysia as a collectivistic society, where social harmony, group cohesion and relational interdependence are prioritised (Ma'rof et al., 2024), generalisability of the SCAARED cannot be assumed. As the scale was developed in a more individualistic context, local validation is needed to determine if it is appropriate for use within the Malaysian population.

Classical Test Theory (CTT) explains that reliability and item statistics depend on samples completing the scale, supporting that instruments function best in populations where they were originally developed (De Ayala, 2009). Internal consistency is therefore central to this validation as it determines if items within each subscale measure their respective anxiety domain coherently. This will be assessed using indices such as Cronbach's alpha (α) and McDonald's omega (ω) to determine reliability of the SCAARED items.

As anxiety constructs are not directly observable, Latent Variable Theory (LVT) encourages the use of questionnaires where different item responses reflect individual differences in the underlying latent trait (Gunzler et al., 2024). Construct validity is thus important in this study because the SCAARED assumes that its items reflect four different DSM-5 anxiety domains. Cronbach and Meehl (1955) defined construct validity as the extent to which a measure behaves as expected in relation to other well-established instruments (Haig, 2023). This can be examined through confirmatory factor analysis (CFA), where acceptable model fit would show that the proposed factor structure aligns with theoretical constructs. Convergent validity further strengthens this process by examining if the SCAARED correlates meaningfully with other validated anxiety measures (Zhou et al., 2025).

The DSM-5 ADs, including Panic/Agoraphobia, GAD, SAD and SEP (American Psychiatric Association, 2013a), represent the conceptual basis for the SCAARED (Angulo et al., 2017). Each disorder is differentiated by specific cognitive themes, avoidance patterns and physiological features (American Psychiatric Association, 2013a), which form the foundation of SCAARED's four subscales. Therefore, examining the internal consistency, factor structure and convergent validity of the SCAARED will provide preliminary evidence on whether the scale is psychometrically sound in the Malaysian context.

Psychometric Properties Across Cultures

Existing validation studies generally support the SCAARED as a multidimensional measure of adult anxiety, but they also show that item and factor performances can vary across cultures. When developing the SCAARED, Angulo et al. (2017) assessed 336 individuals aged 18-27 for validation. Taken from a sample of psychiatric patients

and healthy controls, results of factor analysis indicated four domains namely somatic/panic/agoraphobia, GAD, SEP and SAD with a Cronbach's alpha (α) of 0.92, 0.94, 0.86 and 0.91 respectively. Similarly, the total-scale reported a Cronbach's α of 0.97, indicating good internal consistency. Principal components analysis identified a clear four-factor structure that aligned with DSM-5 ADs, and this solution explained 57% of the total variance. These results supported the factor structure and diagnostic utility of the scale. With that, other studies translated and validated the SCAARED in their respective nations.

In Spain (Cueva et al., 2021), Iran (Farani et al., 2022), Korea (Hwang et al., 2024) and China (Wang et al., 2022), the four-factor of SCAARED were generally supported. However, item-level refinements and cross-loadings were noted because an improved fit was seen after model modifications. For example, five items (9, 11, 16, 22 and 25) were removed in the Chinese validation due to low factor loadings and cross-loadings, resulting in a 38-item version. Likewise, the original four-factor model did not show acceptable CFA fit in the Korean validation and a revised four-factor structure was kept with similar dimensions, but several items cross loaded. These findings suggest that some items on the SCAARED may not represent each domain with the same clarity in every population.

Apart from that, Ang (2020) validated SCARED in a community sample of 386 Malaysians aged 8-17 from Kuala Lumpur. Although subscale Cronbach's α ranged from 0.45 to 0.80, neither the original five-factor model nor the revised four-factor model demonstrated acceptable CFA fit. Ang (2020) noted that 'School Avoidance' has consistently emerged as the least reliable factor in international research, including those conducted in Asia. Although the study focused on children, these findings are relevant because SCAARED was derived from SCARED.

Overall, these findings reinforce the rationale for validating SCAARED among Malaysian adults to determine whether the factor structure remains stable and whether cultural influences shape anxiety symptom patterns across development. Furthermore, standardising the language across child and adult versions will allow clearer comparisons. Thus, the SCAARED will not be translated in this preliminary study.

Literature Gap

Across these cultural contexts, SCAARED consistently demonstrated high reliability and strong convergent validity, yet factor structures showed patterns of instability, particularly in relation to somatic and interpersonal items. Most validation studies have reported item-level refinements or structural adjustments in some cultural contexts (Cueva et al., 2021; Hwang et al., 2024; Wang et al., 2022).

Moreover, studies in Korea and Spain had small sample sizes, which reduced generalisability of their findings (Kang & Kim, 2024). Some studies had lengthy

additional instruments besides SCAARED, which led to increased participant fatigue and response bias (Jeong et al., 2022). Ali et al. (2021) also mentioned that cultural adaptation of non-Western measures helps facilitate correct diagnoses. This was reflected in a study by Ang (2020) where the author confirmed validity of SCARED but refactored structures for local population. Taking these discrepancies into account, the current research considered sample sizes, length of extra assessments, and culture-based appropriateness. These inconsistencies provide a strong rationale for validating SCAARED in Malaysian adults to determine whether the four-factor structure holds and whether cultural differences shape item performance.

Research Hypotheses

1. The original four-factor structure of SCAARED will demonstrate acceptable model fit in the Malaysian context, as assessed by CFA fit indices.
2. Acceptable internal consistency in the Malaysian adult population will be seen in;
   2.1. Total-scale.
   2.2. Panic/Agoraphobia.
   2.3. GAD subscale.
   2.4. SAD subscale.
   2.5. SEP subscale.
3. Acceptable convergent validity will be seen with;
   3.1. Panic subscale and Panic Disorder Dimensional Scale (PD-D).
   3.2. Agoraphobia subscale and Agoraphobia Dimensional Scale (AG-D).
   3.3. GAD subscale and Generalised Anxiety Disorder Dimensional Scale (GAD-D).
   3.4. SAD subscale and Social Anxiety Disorder Dimensional Scale (SAD-D).
   3.5. SEP subscale and Separation Anxiety Disorder Dimensional Scale (SEP-D).

METHODOLOGY

Study Design

A cross-sectional survey design was used. This approach is generally recommended in validation studies (So et al., 2026). Cross-sectional datasets are suitable for factor analyses since they offer sufficient data for the first validation and require only one point of data collection (Boateng et al., 2018).

Participants

This study only included Malaysian adults aged 18 and above. To maintain consistency with the validated SCARED instrument in Malaysia (Ang, 2020) and to reduce translation bias, English proficiency was required. The study excluded those with psychiatric disorders (schizophrenia or bipolar disorder) to reduce confounding variables (Silva et al., 2024).

Convenience and snowball sampling were the non-probability methods used to

recruit participants. This is sufficient for validation studies where the main goal is to assess measurement properties rather than obtaining population prevalence (Ahmed, 2024). However, the sample should not be considered representative of all Malaysian adults. The findings therefore offer preliminary evidence from English-speaking Malaysian adults who were reachable online.

Sample Size

Sample size determination followed established methodological recommendations for CFA. The participant-to-item ratio of at least 10:1 is a commonly applied ratio (White, 2022). To allow for incomplete or invalid responses, an additional 20% was added (Bujang, 2021). This resulted in a target of 528 participants.

Measures

Demographic Information

The participants completed a demographic questionnaire. This assessed age, sex, and psychiatric history. They were also asked whether they had previously been diagnosed with an AD. Data on participants' race was not collected because ethnicity analyses were beyond the scope of the present study.

Screen for Adult Anxiety Related Disorders (SCAARED)

The SCAARED items are rated on a three-point Likert scale ranging from 0 ("Not true or hardly ever true") to 2 ("Very true or often true"). Symptoms are based on the past three months, with higher scores indicating greater severity of anxiety.

DSM-5 Dimensional Anxiety Measures

To evaluate convergent validity, selected items from the DSM-5 dimensional anxiety scales developed by the American Psychiatric Association were administered. These included PD-D (American Psychiatric Association, 2013d), AG-D (American Psychiatric Association, 2013b), GAD-D (American Psychiatric Association, 2013c), SAD-D (American Psychiatric Association, 2013f), and SEP-D (American Psychiatric Association, 2013e). Each is rated on a five-point Likert scale ranging from 0 ("Never") to 4 ("All of the time"), assessing symptoms over the past seven days, with higher scores indicating greater severity.

To minimise participant fatigue while maintaining data quality, only the three highest factor loadings or item-total correlations items from each construct were retained based on their documented psychometric robustness. This approach is consistent with evidence showing that short-form measures can preserve validity, particularly when the selection of items is done by the strongest ones only (Smith et al., 2000; Ziegler & Kemper, 2014). For example, the two-item version of the Connor-Davidson Resilience Scale was found to have a very high correlation with the full 25-item scale. This proves that the chosen items can sufficiently represent the constructs (Vaishnavi et al., 2007).

As a result, items 1, 2, and 10 from PD-D, items 2, 3, and 4 from AD-D, items

1, 5, and 8 from GAD-D, items 1, 2, and 5 from SAD-D, and items 2, 5, and 8 from SEP-D were selected accordingly (Coldur et al., 2020; Groves et al., 2023; Lebeau et al., 2012).

Procedure

Before collecting data, approval was obtained by Taylors University Research Ethics Committee (Approval Code: HEC 2025/232). The online Google Forms survey first displayed an information sheet. It described the study's purpose, procedures, potential risks and benefits, and researcher's contact details. Electronic informed consent was obtained prior to participation.

The survey began with demographic questions, followed by the SCAARED and the DSM-5 dimensional anxiety measures accordingly. Participants were informed that completion would take approximately 20-30 minutes. Individuals who did not meet inclusion criteria were automatically directed to the end of the survey. Upon completion, participants viewed a debriefing statement and were provided with a list of Malaysian mental health resources.

Statistical Analysis

Data was analysed using the Statistical Package for the Social Sciences (SPSS) and Jeffreys's Amazing Statistics Program (JASP). According to Rogers (2024), JASP is a suitable and accessible platform that supports typical CFA in social science research, with clear computation. As standard SPSS does not directly support CFA, JASP was used. Missing values, outliers and low-quality response patterns were screened for in the dataset. All incomplete or low-quality responses were removed prior to analysis. Descriptive statistics were computed to summarise demographic characteristics.

One of the most commonly used methods to examine construct validity is CFA (Atkinson et al., 2011), and it is utilised to confirm the factor model of a scale (Gomez et al., 2020). Given the ordinal nature of item responses, CFA was conducted using the weighted least squares mean- and variance-adjusted (WLSMV) estimator (Li, 2016). Model fit was assessed using the Comparative Fit Index (CFI) and Tucker–Lewis Index (TLI), with values $\geq$ 0.90 indicating acceptable fit, the Root Mean Square Error of Approximation (RMSEA) with values $\leq$ 0.08 indicating adequate fit, and the Standardised Root Mean Square Residual (SRMR) with values $\leq$ 0.08 indicating satisfactory fit (Kline, 2016).

Internal consistency of SCAARED's total score and its subscales was evaluated using Cronbach's α (Cronbach, 1951) and McDonald's ω (McDonald, 1999). Reporting Cronbach's α in the present study follows the precedent set by Angulo et al. (2017) in the original SCAARED validation and facilitates cross-study comparison. McDonald's ω was additionally computed because it is recommended when the assumptions underlying Cronbach's α are not met (Goodboy & Martin, 2020), particularly when tau-equivalence is violated (Viladrich et al., 2017). Cronbach's α and McDonald's ω were calculated for the total-scale and its subscales. Coefficients above 0.80 were interpreted as "good" internal consistency,

those above 0.70 were "acceptable", and those below 0.70 were "questionable" (Nunnally, 1978).

Pearson's correlation coefficient was used to examine convergent validity of the SCAARED subscales with the PD-D, AG-D, GAD-D, SAD-D, and SEP-D scales respectively. Effect sizes were based on "small" being ≥ 0.10, "moderate" being ≥ 0.30, and "strong" being ≥ 0.50 (Cohen, 1988). A moderate to strong positive correlation would indicate that SCAARED subscales demonstrate meaningful convergence with DSM-5 dimensional measures, supporting that both assess similar anxiety constructs.

RESULTS

Preliminary Analysis

A total of 1,062 responses were collected. Following data screening, three responses were deleted because their responses did not meet the inclusion criteria. Another was excluded because the participant chose 0 for almost all items except for one panic item. Such patterns are defined as inconsistent responses that can decrease the reliability and validity of self-report data (Schell et al., 2022). It was mandatory to answer all the items in the questionnaire because they were made 'required'. Hence, no values were missing in the final sample.

Univariate outliers were assessed using standardised z-scores, with no values exceeding the ±3.29 threshold (Tabachnick & Fidell, 2014). Multivariate outliers were examined by Mahalanobis distance. A significance threshold of $p < .001$ is suggested for large datasets, especially for CFA (Hair et al., 2019). The chi-square value for 44 degrees of freedom at $p < .001$ is 78.750 (Hole, 2005) and the maximum Mahalanobis distance observed in the dataset was 70.800. These results supported the suitability of the dataset for subsequent factor-analytic procedures.

In large samples, sampling distribution tends to approximate normality even when item-level distributions deviate from normality (Field, 2009). In line with the Central Limit Theorem (Ghasemi & Zahediasl, 2012), parametric statistical procedures were appropriate given the sample size.

Descriptive Statistics

Participants

The age range of participants was 18-68 years (M = 24.871, SD = 7.586). Although this covered a wide range, the majority were young adults. 54.2% of participants were aged 23 years (N = 573) and 30.1% were aged 22 years (N = 318). There were 49.1% (N = 520) males and 50.9% (N = 538) females. Only 1.5% of participants (N = 16) reported that they were diagnosed with an AD. The dataset mainly represented a non-clinical population. Refer to Table 1.

Table 1
Demographic data

Variables	Groups	Frequency	%
Gender	Male	520	49.1
	Female	538	50.9
Anxiety Diagnosis	Yes	16	1.5
	No	1042	98.5

Source: Author's own work

The Screen for Adult Anxiety Related Disorders (SCAARED)

Across the 44 SCAARED items, participants reported experiencing symptoms on some days rather than frequently (*M* = 0.812-1.018, *SD* = 0.696-0.753). Additionally, Kilic and Uysal (2022) noted that item-total correlations as low as 0.200 is acceptable for scales with two or three categories. Following the guideline for a three-point response format, seven items demonstrated total correlations between 0.148-0.188. Nevertheless, "Cronbach's Alpha if item deleted" ranged between 0.821-0.828 across all items, indicating that removal of any individual item would not meaningfully improve internal consistency. Therefore, no items were removed. Refer to Table 2.

Table 2
Descriptive statistics of the 44-items in SCAARED

Item	Response Categories			M	SD	Skewness	Kurtosis	Item-total Correlation
	0	1	2					
1	297	540	221	0.928	0.696	0.098	-0.936	0.317
2	309	503	246	0.940	0.722	0.090	-1.078	0.249
3	280	535	243	0.965	0.703	0.049	-0.971	0.169
4	345	478	235	0.896	0.733	0.165	-1.129	0.266
5	310	505	243	0.937	0.721	0.095	-1.070	0.274
6	371	466	221	0.858	0.735	0.229	-1.125	0.361
7	314	504	240	0.930	0.721	0.105	-1.069	0.278
8	278	525	255	0.978	0.710	0.031	-1.012	0.163
9	351	473	234	0.889	0.736	0.177	-1.139	0.357
10	292	529	237	0.948	0.706	0.073	-0.988	0.298
11	371	455	232	0.869	0.744	0.216	-1.170	0.340
12	342	500	216	0.881	0.717	0.180	-1.044	0.363
13	360	454	244	0.890	0.748	0.181	-1.196	0.330
14	319	489	250	0.935	0.731	0.101	-1.122	0.292
15	375	437	246	0.878	0.757	0.206	-1.230	0.403
16	341	478	239	0.904	0.734	0.153	-1.136	0.335
17	370	473	215	0.853	0.729	0.233	-1.099	0.365
18	267	505	286	1.018	0.723	-0.027	-1.085	0.156
19	342	470	246	0.909	0.740	0.146	-1.165	0.353
20	335	496	227	0.898	0.722	0.156	-1.073	0.324
21	291	516	251	0.962	0.715	0.055	-1.041	0.207
22	359	454	245	0.892	0.748	0.178	-1.197	0.333
23	301	523	234	0.937	0.709	0.091	-1.005	0.234
24	258	533	267	1.009	0.705	-0.012	-0.983	0.148
25	361	447	250	0.895	0.753	0.175	-1.220	0.359
26	381	471	206	0.835	0.727	0.264	-1.079	0.336

Table 2 *(continue)*

Item	Response Categories			M	SD	Skewness	Kurtosis	Item-total Correlation
	0	1	2					
27	328	496	234	0.911	0.724	0.136	-1.084	0.268
28	401	455	202	0.812	0.731	0.308	-1.090	0.377
29	317	490	251	0.938	0.730	0.097	-1.120	0.307
30	295	534	229	0.938	0.701	0.087	-0.964	0.212
31	267	510	281	1.013	0.720	-0.020	-1.068	0.188
32	299	486	273	0.975	0.735	0.038	-1.148	0.362
33	317	511	230	0.918	0.715	0.121	-1.037	0.253
34	287	521	251	0.967	0.712	0.048	-1.025	0.236
35	274	528	256	0.983	0.708	0.024	-1.002	0.172
36	351	458	249	0.904	0.747	0.158	-1.196	0.338
37	284	508	266	0.983	0.721	0.025	-1.075	0.153
38	341	493	224	0.889	0.723	0.170	-1.075	0.353
39	314	498	246	0.936	0.725	0.098	-1.093	0.278
40	364	455	239	0.882	0.746	0.195	-1.184	0.357
41	273	509	276	1.003	0.721	-0.004	-1.072	0.300
42	318	475	265	0.950	0.741	0.080	-1.174	0.294
43	281	534	243	0.964	0.703	0.050	-0.975	0.223
44	301	483	274	0.974	0.737	0.040	-1.157	0.245

Note. 0 = Not true or hardly ever true, 1 = Somewhat true or sometimes true, 2 = Very true or often true
Source*:* Author's own work

Inferential Statistics

Construct Validity

CFA evaluated the original four-factor structure of SCAARED proposed by Angulo et al. (2017). The hypothesised four-factor model demonstrated an excellent model fit (χ^2 = 1,080.231, df = 896, $p < .001$, CFI = 0.963, TLI = 0.961, RMSEA = 0.014, and SRMR = 0.037). The CFI and TLI were > 0.95, the RMSEA was < 0.06, and the SRMR was < 0.08. This indicates that the proposed model fit is excellent (Kline, 2016). Hypothesis 1 is accepted. Refer to Figure 1.

All items demonstrated statistically significant correlations with their respective latent factors ($p < .001$). Factor loadings of 0.300 or higher are generally acceptable (Tavakol & Wetzel, 2020). In Panic/ Agoraphobia subscale, item 9 was lower than the threshold. In GAD subscale, items 3, 5, 7, 9, 10, and 11 had low factor loadings. Item 1 from SAD subscale and item 6 from SEP subscale also demonstrated weak relationships with their respective factors. However, remaining items achieved acceptable factor loadings, implying that most items appropriately represent their constructs. Refer to Table 3.

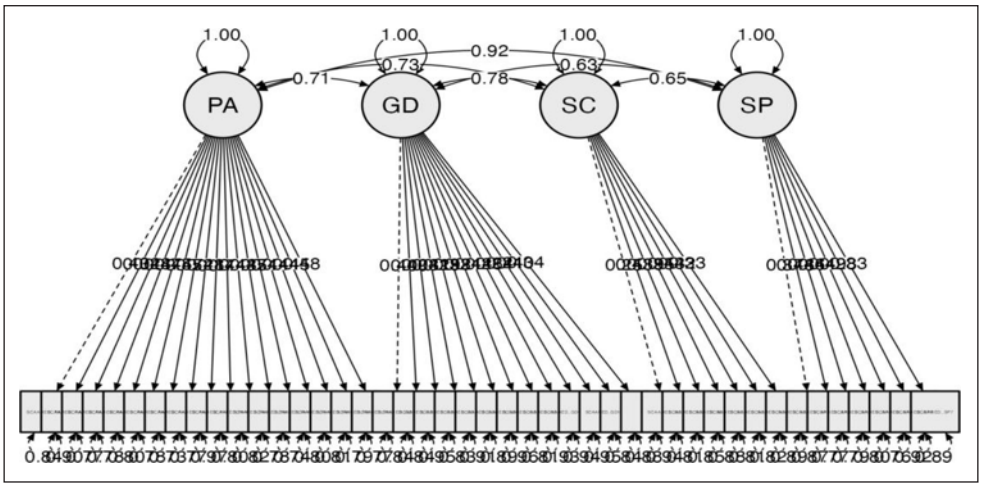

Figure 1. JASP CFA Model Plot of the SCAARED
Source: Author's own work

Table 3
Factor loadings of the 44-items in SCAARED

Factor	Indicator	Std. Estimate	Std. Error	*p*
Panic/Agoraphobia (PA)	SCAARED_PA1	0.396	0.031	< .001
	SCAARED_PA2	0.324	0.031	< .001
	SCAARED_PA3	0.484	0.026	< .001
	SCAARED_PA4	0.472	0.026	< .001
	SCAARED_PA5	0.449	0.027	< .001
	SCAARED_PA6	0.470	0.028	< .001
	SCAARED_PA7	0.524	0.024	< .001
	SCAARED_PA8	0.477	0.026	< .001
	SCAARED_PA9	0.170	0.036	< .001
	SCAARED_PA10	0.444	0.027	< .001
	SCAARED_PA11	0.427	0.029	< .001
	SCAARED_PA12	0.469	0.026	< .001
	SCAARED_PA13	0.511	0.023	< .001
	SCAARED_PA14	0.443	0.030	< .001
	SCAARED_PA15	0.436	0.028	< .001
	SCAARED_PA16	0.454	0.027	< .001
	SCAARED_PA17	0.480	0.026	< .001
Generalised Anxiety (GD)	SCAARED_GD1	0.397	0.035	< .001
	SCAARED_GD2	0.397	0.033	< .001
	SCAARED_GD3	0.225	0.037	< .001
	SCAARED_GD4	0.413	0.033	< .001
	SCAARED_GD5	0.293	0.035	< .001
	SCAARED_GD6	0.331	0.035	< .001
	SCAARED_GD7	0.207	0.040	< .001
	SCAARED_GD8	0.436	0.033	< .001

Table 3 *(continue)*

Factor	Indicator	Std. Estimate	Std. Error	*p*
	SCAARED_GD9	0.263	0.037	< .001
	SCAARED_GD10	0.237	0.038	< .001
	SCAARED_GD11	0.213	0.039	< .001
	SCAARED_GD12	0.395	0.033	< .001
	SCAARED_GD13	0.343	0.035	< .001
Social Anxiety (SC)	SCAARED_SC1	0.251	0.038	< .001
	SCAARED_SC2	0.434	0.034	< .001
	SCAARED_SC3	0.389	0.035	< .001
	SCAARED_SC4	0.349	0.036	< .001
	SCAARED_SC5	0.434	0.035	< .001
	SCAARED_SC6	0.423	0.035	< .001
	SCAARED_SC7	0.326	0.038	< .001
Separation Anxiety (SP)	SCAARED_SP1	0.366	0.033	< .001
	SCAARED_SP2	0.476	0.029	< .001
	SCAARED_SP3	0.459	0.030	< .001
	SCAARED_SP4	0.443	0.031	< .001
	SCAARED_SP5	0.486	0.028	< .001
	SCAARED_SP6	0.283	0.036	< .001
	SCAARED_SP7	0.331	0.034	< .001

Source: Author's own work

Internal Consistency

The total scale had a Cronbach's α of 0.827 and a McDonald's ω of 0.837, indicating excellent reliability (Nunnally, 1978). Across subscales, Panic/Agoraphobia showed the highest internal consistency (α = 0.749, ω = 0.765). The internal consistency of GAD (α = 0.554, ω = 0.524), SAD (α = 0.474, ω = 0.466) and SEP (α = 0.509, ω = 0.523) were beneath the recommended thresholds. These lower coefficients suggest that there is limited homogeneity among items within the domains.

As a result, Hypotheses 2.1 and 2.2 are accepted but Hypotheses 2.3, 2.4 and 2.5 were rejected. Refer to Table 4.

Table 4
Internal consistency of SCAARED and its subscales

Scale / Subscale	*k*	*M*	*SD*	Cronbach's α	McDonald's ω
Total SCAARED	44	40.774	11.019	0.827	0.837
Panic/Agoraphobia	17	15.274	5.577	0.749	0.765
GAD	13	12.514	3.712	0.554	0.524
SAD	7	6.708	2.457	0.474	0.466
SEP	7	6.278	2.561	0.509	0.523

Note. k depicts number of items, *M* represents Mean, *SD* indicated Standard Deviation
Source: Author's own work

Convergent Validity

Convergent validity was examined using Pearson correlation coefficients between SCAARED subscales and corresponding DSM-5 dimensional anxiety measures. Panic ($r = 0.557, p < .001$) and Agoraphobia ($r = 0.558, p < .001$) subscales demonstrated strong convergent validity (Cohen, 1988). GAD, SAD, and SEP subscales were not reported because low reliability can undermine the ability to detect associations with the respective measurements (Fu et al., 2022). Hypotheses 3.1 and 3.2 are therefore accepted whilst hypotheses 3.3, 3.4 and 3.5 were not tested.

DISCUSSION

Results Summary

This study evaluated the psychometric properties of SCAARED in a Malaysian adult sample. The findings provide preliminary evidence for the SCAARED among English-speaking Malaysian adults. The total-scale demonstrated excellent internal consistency, indicating that the items functioned coherently as a general measure of anxiety. The Panic/Agoraphobia subscale showed acceptable reliability while the GAD, SAD, and SEP subscales did not meet recommended reliability thresholds. Convergent validity was supported for Panic and Agoraphobia through statistically significant positive associations with corresponding DSM-5 dimensional measures. Convergent validity for GAD, SAD, and SEP was not examined due to their low reliability. These findings are consistent with previous studies where the broad SCAARED structure was supported, but certain subscales required culturally informed interpretation. Refer to Table 5.

Table 5
Summary of results

Hypothesis	Sub-Hypothesis	Results	Accepted / Rejected
The original four-factor structure of the SCAARED will demonstrate acceptable model fit in the Malaysian context, as assessed by CFA fit indices.	N/A	The four-factor model showed an excellent fit (χ^2 = 1,080.231, *df* = 896, CFI = 0.963, TLI = 0.961, RMSEA = 0.014, SRMR = 0.037), confirming suitability of the SCAARED structure in the Malaysian context.	Accepted
The total SCAARED scale and its subscales will exhibit acceptable internal consistency in the Malaysian adult population.	The total SCAARED scale will exhibit acceptable internal consistency in the Malaysian adult population.	The total SCAARED scale demonstrated good internal consistency ($\alpha = 0.827$, $\omega = 0.837$), indicating high reliability for assessing overall anxiety symptoms in Malaysian adults.	Accepted

Table 5 *(continue)*

Hypothesis	Sub-Hypothesis	Results	Accepted / Rejected
	The Panic/Agoraphobia subscale of the SCAARED will exhibit acceptable internal consistency in the Malaysian adult population.	The Panic/Agoraphobia subscale showed acceptable reliability (α = 0.749, ω = 0.765), demonstrating adequate internal consistency for this domain.	Accepted
	The GAD subscale of the SCAARED will exhibit acceptable internal consistency in the Malaysian adult population.	The GAD subscale demonstrated low internal consistency (α = 0.554, ω = 0.524), which fell below recommended thresholds, indicating inadequate reliability.	Rejected
	The SAD subscale of the SCAARED will exhibit acceptable internal consistency in the Malaysian adult population.	The SAD subscale showed weak internal consistency (α = 0.474, ω = 0.466), indicating insufficient reliability among items within this domain.	Rejected
	The SEP subscale of the SCAARED will exhibit acceptable internal consistency in the Malaysian adult population.	The SEP subscale demonstrated inadequate reliability (α = 0.509, ω = 0.523), suggesting that items did not function cohesively in this sample.	Rejected
The SCAARED subscales will show significant positive correlations with the respective DSM-5 dimensional anxiety scales, with moderate to strong effect sizes for convergent validity.	The Panic subscale of the SCAARED will demonstrate acceptable convergent validity when compared with the PD-D.	The Panic subscale demonstrated strong convergent validity with the DSM-5 PD-D scale ($r = 0.557$, $p < .001$), showing a strong positive association.	Accepted
	The Agoraphobia subscale of SCAARED will demonstrate acceptable convergent validity when compared with the AG-D.	The Agoraphobia subscale showed strong convergent validity with the DSM-5 AG-D scale ($r = 0.558$, $p < .001$), indicating a robust positive relationship.	Accepted
	The GAD subscale of the SCAARED will demonstrate acceptable convergent validity when compared with the GAD-D.	N/A	N/A
	The SAD subscale of the SCAARED will demonstrate acceptable convergent validity when compared with the SAD-D.	N/A	N/A
	The SEP subscale of the SCAARED will demonstrate acceptable convergent validity when compared with the SEP-D.	N/A	N/A

Source: Author's own work

FINDINGS AND INTERPRETATION

Descriptive Analysis

Most of the participants were young adults in their early 20s. Such a developmental stage is typically marked with identity exploration, academic and career planning, and the negotiation of new responsibilities (Wong et al., 2024). These life transitions can increase situational anxiety about performance, finances, and interpersonal evaluation without the presence of clinical psychopathology (Luyckx et al., 2011). This can be evidence of psychometric performance in a community sample, rather than diagnostic utility. It also aligns with the demographics as the sample was mainly non-clinical.

The relatively narrow age range in the study helped to improve internal validity by lessening the variability expected from different life stages (Treadwell et al., 2011). Thus, the factor structure could be examined with higher precision in a community-based young adult sample. However, such homogeneity can limit the variability of symptom expression (Lakes, 2013). When variability is reduced, it is possible that there will be lower inter-item correlations and lower internal consistency estimates (Fife et al., 2012), particularly as items refer to subtle differences in anxiety experiences. This aligns with the lower internal consistency observed in several SCAARED subscales.

Construct Validity

The CFA results showed an excellent model fit of the four-factor structure. This supports that the scale is an effective measure of broad latent dimensions in this Malaysian population and it represents anxiety concepts the same as the original conceptualisation (Angulo et al., 2017). Nevertheless, excellent global fit does not necessarily imply that item functioning is optimal (Schmitt, 2011). Nine items revealed modest factor loadings suggesting that the broader construct was well supported, but some items were less representative of their respective factors.

Item 18 ("When I get anxious, my heart beats fast") of the Panic/Agoraphobia domain loaded below the threshold. Even everyday situations can cause one to feel like their heart is racing when it is not a situation that is specifically related to anxiety. For example, caffeine intake, exhaustion, feeling warm, or even being ill can all lead to physical arousal as well (Suvi et al., 2017). Thus, it is possible that the item reflects a general somatic sensitivity that may disperse its shared variance across factors and reduce its loading on panic specifically.

Six of the low loading items appeared in GAD subscale, including "It is hard for me to stop worrying", "I worry about things working out for me", and "I worry about how well I do things". High achievement standards and strong family obligations are deeply ingrained values in Malaysia, encouraging individuals to think extensively about success and responsibility (Chua et al., 2018; Tan et al., 2019). In Malaysian cultural norms, worries about performance can reflect conscientious striving and responsible behaviour rather than emotional disturbance. Consequently, respondents may

endorse these items because they resonate with cultural expectations, yet they do not necessarily experience the associated physiological tension and functional impairment that characterise clinical GAD. Worry can also appear in many mental health conditions, which makes it a transdiagnostic feature. For example, it cuts across anxiety, depression, and stress, reflecting a broad negative affectivity factor (Kertz et al., 2012). Furthermore, GAD-7 detects symptoms of SAD and panic disorder, functioning as an overall anxiety index (Beard & Björgvinsson, 2014). Thus, low loadings can arise because items tap general negative affectivity rather than a narrow GAD construct.

The weaker items in SAD and SEP subscales, namely item 3 ("I don't like to be with people I don't know well") and item 30 ("I don't like to be away from my family"), can be read as expressions of politeness, caution, or family closeness rather than indicators of pathological fear (Tan et al., 2019; Vaswani et al., 2022). This pattern mirrors findings from the Malaysian validation of SCARED (Ang, 2020), which also reported similar item-level weaknesses and did not obtain an acceptable fit for either the four-factor or five-factor models. Hence, it is necessary to investigate if different phrasings or response forms could distinguish the conformity to social norms at the level of anxiety more clearly.

Items with lower loadings were retained because they reflect theoretically relevant and culturally interpretable aspects of anxiety. Nevertheless, they were not empirically confirmed in this study and should be examined further using measurement invariance testing, qualitative approaches, or alternative modelling strategies.

Internal Consistency

The excellent reliability of the total-scale indicates that the measure is capable of capturing shared features of anxiety, such as physiological arousal and cognitive distress, in a stable manner across respondents. At the same time, very high internal consistency can also reflect substantial overlap in item content rather than a finely differentiated construct (Clark & Watson, 2019). This is important when interpreting the value of total-scale scores versus subscale scores.

Symptoms such as heart palpitations, dizziness, and breathlessness are concrete physical experiences that are easier to recognise than one's own thoughts. The physical nature of anxiety symptoms is easier for individuals to identify because recognising bodily sensations requires less introspective ability than recognising cognitive processes (Clemente et al., 2024). The high internal consistency of Panic/Agoraphobia subscale therefore suggests that Malaysians recognise and report bodily manifestations of anxiety in a consistent manner, indicating that anxiety may be conceptualised as an embodied experience. Cross-cultural studies have indicated that individuals from Asian societies usually express their distress through physical symptoms and tend to minimise their emotional or psychological side of the matter (Cackovic et al., 2023). Since physical discomfort is generally

more acceptable from a social point of view than psychological distress (Kowalski & Peipert, 2019), respondents might feel more comfortable to report somatic symptoms while they may not report as much cognitive or interpersonal issues in self-report measures. Such a response pattern can thus lead to higher internal consistency within the somatic subscale, which in turn may reflect cultural norms concerning which forms of distress are considered acceptable to disclose.

In comparison, GAD, SAD and SEP domains contained items that covered a broader range of content. GAD subscale in this study included statements about worry as a trait, the content of worry and the consequences of worry on functioning, for example "I am a worrier," "I worry about being as good as other people," and "I have difficulty sleeping". These items represent both the process of worrying and the appraisal of worry, which are conceptually distinct in Wells (2005)'s metacognitive model of GAD. This mix provides good clinical breadth and reflects how GAD presents in daily life, yet it also reduces internal homogeneity. When items tap different levels of a model, respondents may reasonably endorse some aspects but not others. Internal consistency then decreases even though each item is theoretically relevant. Instead of viewing lower reliability as purely negative, it can be interpreted as evidence that GAD subscale is capturing several interrelated but not identical facets of anxious thinking. Future research could explore whether separating process items from appraisal items would meaningfully improve reliability, or whether the current multidimensionality better reflects the complexity of GAD in Malaysian adults.

Similarly, the items on SAD subscale cover evaluative fears and social reserve, yet in Malaysian contexts social restraint can represent respect, safety or modesty rather than fear. Collectivist values emphasise humility and deference, so reserved behaviour could reflect adherence to social norms rather than pathological avoidance (Vaswani et al., 2022). Moreover, collectivist cultures are generally more accepting of humility and withdrawn behaviours, viewing them as expressions of social propriety rather than indicators of anxiety (Brockveld et al., 2014). If some participants endorsed these items because they viewed quietness as polite, while others endorsed them because they experienced distressing fear of negative evaluation, the shared variance among items would fall. Reliability then decreases not because the subscale is poorly constructed but because its indicators carry more than one meaning within this culture. This ambiguity raises a broader question about whether Western-framed SAD items can clearly distinguish disorder from culturally valued modesty in collectivist societies.

SEP subscale was designed to capture separation-related anxiety while also reflecting family closeness that is common in Asian contexts. In Malaysian culture, family and kinship are the major support system of social networks, and children are expected to show good and responsible behaviour

towards their parents thus giving great value to the keeping of close and harmonious intergenerational relationships (Aziz & Yusooff, 2012). Therefore, the reaction of the separation, accompanied by the feeling of distress, can either point to anxious attachment, normal familial closeness, or even situational obligations rather than an indication of pathological anxiety. In adult samples, additional contextual factors such as multigenerational living arrangements, migration for work or study, and caregiving responsibilities may further contribute to variability in item endorsement. Rather than treating this as a psychometric flaw, the lower internal consistency can point to conceptual heterogeneity in how separation from attachment figures is understood in Malaysian adulthood. This suggests that SEP scores should be interpreted within relational and cultural frameworks, rather than exclusively as measures of anxiety pathology.

Apart from that, short scales with fewer than 10 items commonly produce lower internal consistency and this can occur even when the items are conceptually appropriate (Pallant, 2020). In the present study, Panic/Agoraphobia subscale was the longest with 17 items. The GAD scale had 13 items, and SAD and SEP subscales had seven items each. This pattern was reflected in the findings because internal consistency scores were highest for the scales with more items and lowest for those with the fewest items. Although other SCAARED validation studies have reported strong reliability for the shorter subscales, they translated the instrument, which possibly enhanced conceptual clarity and cultural comprehensibility. Although only those fluent in English participated in the present study, educational level was not assessed, introducing variability in how items were understood (Alavi et al., 2026). Hence, cultural and linguistic adaptation might be a significant factor that leads to higher internal consistency.

Convergent Validity

The convergent validity analysis demonstrated significant positive associations between Panic and Agoraphobia subscales and their corresponding DSM-5 dimensional anxiety measures. As hypothesised, these domains showed meaningful convergence with theoretically aligned constructs, providing support for the validity of these subscales within this Malaysian adult sample. However, as GAD, SAD, and SEP subscales did not meet reliability criteria, convergent validity was not assessed for these domains, and no conclusions can be drawn regarding their external associations. This lack of evidence identifies an important direction for future work to determine whether these subscales show comparable relationships with DSM-based measures in Malaysian samples.

Unlike previous SCAARED validation studies that relied on broad distress measures, the present study employed DSM-5 dimensional anxiety measures that assess specific anxiety symptom domains. The strong correlations for Panic and Agoraphobia subscales are also

consistent with the close alignment between physiological anxiety symptoms and DSM-5 diagnostic criteria, which both SCAARED and DSM-5 dimensional measures are based on (American Psychiatric Association, 2013a). In contrast, measures used in earlier validations, assess broader emotional distress and somatic symptoms rather than anxiety-specific constructs. Although such measures often produce stronger correlations by capturing non-specific features of internalising distress, they may overestimate convergence. Accordingly, the strong correlations observed for Panic and Agoraphobia subscales likely reflect the specificity of the comparison instruments. This approach prioritises conceptual accuracy over inflated correlations and represents a methodological strength.

CONCLUSION

Overall, this study provides initial evidence that SCAARED's original four-factor structure is applicable among Malaysian adults and that the total-scale functions as a reliable index of anxiety symptoms. The Panic/Agoraphobia domain showed more consistent subscale performance and supported convergent validity with DSM-5 dimensional measures (American Psychiatric Association, 2013a). Lower reliability in the GAD, SAD, and SEP subscales suggests that subscale interpretation should be interpreted with caution. These findings support the use of SCAARED for broad screening use in Malaysia while highlighting areas for further validation, cultural refinement, and clinical utility testing.

IMPLICATION OF THE STUDY

This study provides initial Malaysian psychometric evidence for SCAARED and addresses a methodological gap in adult anxiety assessment research locally. The strong global fit supports the interpretability of the four-factor structure among Malaysian adults. At the same time, lower reliability in several subscales supports cultural relativism by indicating that symptom meaning and organisation may vary across cultures. This reinforces the importance of culturally sensitive criteria that are statistically sound.

Practically, the findings support using the SCAARED total-scale for screening and general assessment for English-speaking Malaysian adults. The Panic/Agoraphobia subscale appears more interpretable as a domain score. In contrast, GAD, SAD, and SEP subscale scores should be interpreted cautiously, alongside clinical judgement. Retaining all 44 items also supports comparability with international research and may be useful for broader monitoring purposes, while further validation work continues.

LIMITATION AND RECOMMENDATION FOR FUTURE RESEARCH

The sample was mainly non-clinical, with most of them being young adults. This limits generalisability of the findings to older adults and clinical populations with higher symptom severity. Online recruitment and unsupervised administration may have led to response biases like socially desirable

responding. The absence of clinician-administered diagnostic interviews in the study also limits the conclusions about diagnostic utility.

Additionally, ethnicity data were not collected. This limits the ability to examine if items function differently across the different cultural groups in Malaysia. Information on educational level was also not assessed. Despite fluency in English being a prerequisite, the level of understanding on the items is not known (Alavi et al., 2026). Since the data was collected only at one point, it was also not possible to assess test-retest reliability and sensitivity to change.

Future studies should recruit more diverse samples across age, geography, and clinical status, including representation of major ethnic groups to evaluate performance across Malaysia's sociocultural contexts. Methodologically, incorporating diagnostic interviews or structured clinical evaluations would allow stronger conclusions about criterion validity. Cognitive interviewing or supervised administration could clarify how respondents interpret culturally sensitive items and reduce comprehension variability.

Future research may begin with EFA in a new sample, followed by CFA in an independent or split sample to evaluate the stability of structure. Where items consistently show weak performance, culturally informed rephrasing could be explored while maintaining accuracy to the original content for comparability. Longitudinal designs will establish test-retest reliability and sensitivity to change for monitoring intervention outcomes.

ACKNOWLEDGEMENT

This publication paper is funded by Taylor's University.

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